UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WISCONSIN

MIKKELSEN GRAPHIC ENGINEERING INC.,
Plaintiff,

      v.   **Case No. 07-C-0391**

ZUND AMERICA, INC., et al.,
**Defendants.**

DECISION AND ORDER

Plaintiff Mikkelsen Graphic Engineering, Inc. ("MGE") brings this action for patent infringement under 35 U.S.C. § 271 against defendants Zund America, Inc. ("Zund" or "Zund America") and Zund Systemtechnik AG ("Zund Systemtechnik"). MGE also alleges state common-law tort claims against Zund America and four of its employees. Before me now are the parties' cross-motions for summary judgment regarding infringement and plaintiff's motion for summary judgment seeking a declaration that the Zund entities are barred by the doctrine of assignor estoppel from challenging the validity of the relevant MGE patents. Zund America and the individual defendants also move for dismissal of plaintiff's state-law claims for lack of subject-matter jurisdiction.

I. BACKGROUND

A.   Overview of Patents & Technology

The relevant MGE patents are U.S. Patent No. 6,619,168 (the "'168 patent") and U.S. Patent No. 6,672,187 (the "'187 patent"). Both patents contain method and apparatus claims relating to improvements in the field of graphics-cutting vision systems – that is, systems for mechanically cutting decals or other graphics areas from sheets of material.

A typical vision system comprises both hardware components and software programs. The hardware consists of a cutting table (16) that accepts a sheet of material (40), such as vinyl, on which the graphics to be cut have been printed. A cutting tool (20) is attached to the table in a way that allows it to move about the X and Y axes relative to the table. An optical sensor or camera (22), which is able to sense certain items on the table, is attached to the cutting tool.
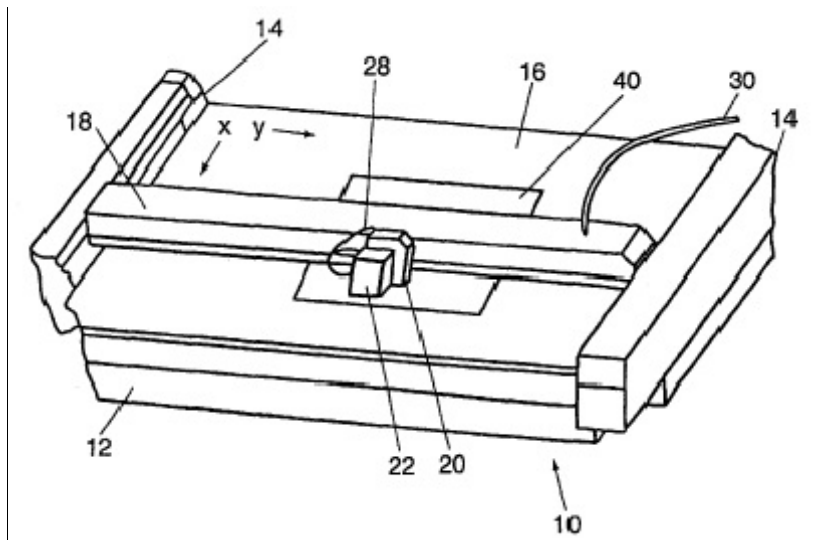
Software programs are used to control the sensor and cutting tool. A user uploads information about the shape of the graphic to be cut from the sheet into a computer workstation running the software. Once a sheet is placed on the cutting table, the software directs the cutting tool to cut the graphic in accordance with the uploaded information. Because the information is expressed in terms of X-Y coordinates relative to the surface of the cutting table, if the sheet is placed on the cutting table incorrectly or the sheet has been distorted in some fashion prior to being placed on the cutting table, the tool will cut the graphic improperly. To prevent improper cutting, a vision system uses a sensor or

camera to determine whether the sheet has been misplaced or distorted. If the software detects a problem, it adjusts the preprogrammed cutting path to compensate for the distortion or improper placement.

MGE's patents describe improved methods and apparatus for detecting and adjusting for misplacement or distortion. In a patent that preceded the '168 and '187 patents, MGE described a method that involves printing "registration marks" (44) on the sheet of material (40) in predetermined positions with respect to the graphics to be cut (42a & 42b).
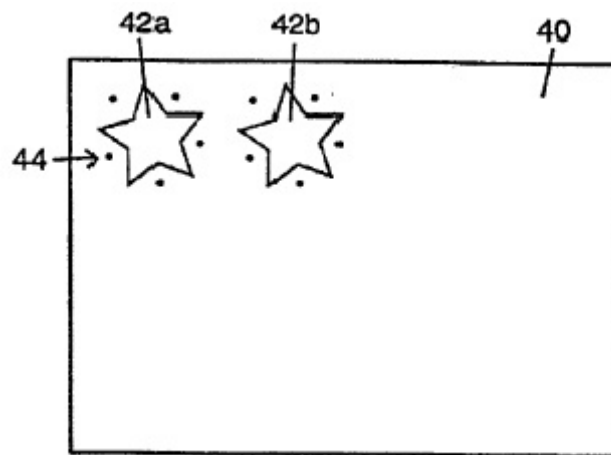
The registration marks can be detected by the sensor or camera attached to the cutting tool. Prior to operation, the vision system is programmed to expect to sense each mark at a certain position on the cutting table (as specified by X-Y coordinates relative to the cutting table). Once a sheet is placed on the table, the sensor detects the position of each mark. If the marks are not precisely where they should be, the software uses the actual locations of the marks to compute a new cutting path, such that the graphics are accurately cut despite any distortion of the sheet that may have occurred. Notably, however, the

method does not specify how the sensor is able to find the registration marks when they are not in their expected locations.

In a second patent that preceded the '168 and '187 patents, MGE refined its method for compensating for distortion and improper placement of the sheet of material. The second patent carries forward the use of registration marks but adds a requirement that a subset of the registration marks be an "initial-position/orientation-determining subset." An example of an initial-position/orientation-determining subset is illustrated below (46).

Fig. 2
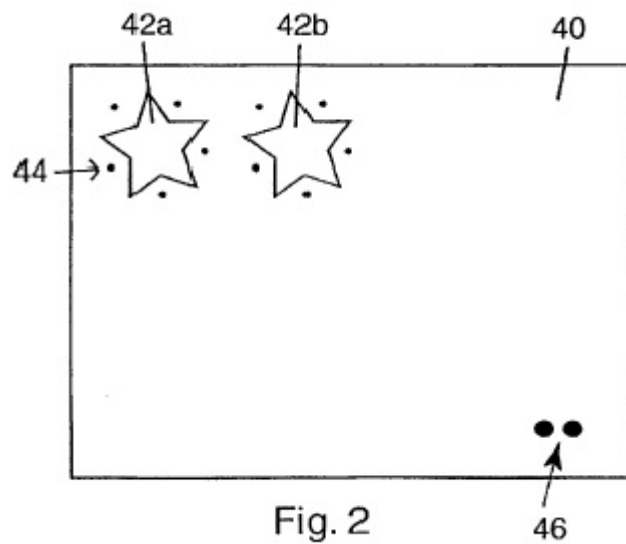
The method specifies that when a sheet of material is placed on the cutting surface, it is placed such that the initial-position/orientation-determining subset is adjacent to the sensor. The sensor then senses the subset, and the software uses the actual position of the subset (as specified by X-Y coordinates relative to the cutting table) to determine a position and orientation of the sheet on the cutting table. Because the remaining registration marks are located in predetermined positions on the sheet of material, once the computer determines the actual location of the subset (and thus the position and
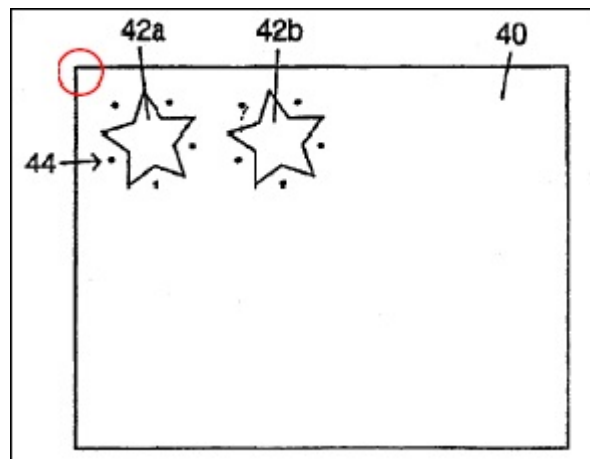
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orientation of the sheet on the cutting table) it can determine the approximate locations of the remaining registration marks. The sensor is then directed to the approximate locations of the remaining marks so that it can sense their actual positions. Once the computer finds the actual positions of all marks, it reconfigures the cutting path so that the graphic is accurately cut.

The use of an initial-position/orientation-determining subset in accordance with the above method allows the actual positions of all registration marks to be determined quickly. Recall that MGE's first patent did not specify how registration marks would be found if they were not in their expected locations, and thus it was consistent with requiring an operator to manually position the sensor over each individual mark. In the method described in the second patent, manual intervention is limited to positioning the sensor over the initial-position/orientation-determining subset. Once the marks that make up the subset are found, the computer can determine the approximate locations of the remaining marks, since the remaining marks are in predetermined positions with respect to the subset. The computer then directs the sensor to the approximate locations of the remaining marks and, assuming the marks are within those approximate locations (and thus within a field of view of the sensor) determines the actual positions of the marks.

The '168 patent adds an automated means for finding the initial-position/orientation-determining subset to this method. As explained above, MGE's second patent describes a method in which manual intervention is limited to ensuring that the sensor can find the initial-position/orientation-determining subset. The '168 patent seeks to eliminate this manual intervention by adding an automated search function. After a sheet of material is placed on the cutting table, the computer directs the sensor to the area of the cutting table

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in which it expects to find the initial-position/orientation-determining subset. If the subset

is not within the sensor's field of view, the computer begins moving the sensor over the

table in a predetermined pattern (such as a circle or zigzag) until in finds the subset. Once

it finds the subset, the method proceeds as described in MGE's earlier patents – i.e., the

computer uses the actual position of the subset to infer the approximate locations of the

remaining registration marks and then instructs the sensor to travel to those locations and

determine the actual positions of the marks, at which time an accurate cutting path can be

determined.

MGE's final patent in this series – the '187 patent – improves on the method

described in the '168 patent. It describes a method that involves the same steps as the

'168 patent, except that the first step involves sensing edges, corners and other features

of the sheet of material (defined in the
patent as "reference features" of the sheet
of material) instead of an initial-
position/orientation-determining subset.
Thus, in the adjacent image, the circled
area constitutes a reference feature that
replaces the function previously performed
by the initial-position/orientation-

determining subset. The method proceeds by (1) sensing the actual position of the corner

of the sheet of material (after performing an automated search in accordance with the

method described in the '168 patent, if necessary); (2) using the data from sensing the

actual position of the corner to determine the approximate locations of the registration

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marks; (3) sensing the actual positions of the registration marks; and (4) computing an accurate cutting path.

B.   Overview of Accused Devices

Zund does not dispute that its vision systems, such as the system pictured to the right, use the hardware components that MGE describes in its patents – i.e., a cutting table and a cutting tool attached to a sensor and controlled by computer software.   However, Zund disputes that its hardware-software combinations infringe MGE's apparatus claims and that a user of such combinations would be performing the steps of MGE's method claims.

The parties' infringement arguments essentially turn on the capabilities of three software packages that Zund America sells to customers for use with Zund vision systems: OptiSCOUT, GTK Cut and Touch & Cut. These software packages are manufactured by third-party vendors and purchased by Zund America for resale to its customers.[1] Although each package is slightly different, in general all three, when combined with Zund's hardware, do the following. First, an operator uploads data about the graphic to be cut into the computer. A sheet of material bearing a graphics area and, in some cases, registration marks is placed on the cutting table. The operator manually positions the sensor (in this

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[1]As discussed in greater detail below, Zund Systemtechnik also purchased units of the software from one of these vendors and resold them to Zund America.

case a camera) over each registration mark and teaches the system where to expect each mark. The system then cuts the graphics from the first sheet of material. When subsequent sheets are placed on the cutting table, the system uses what the operator taught it during the process of cutting the first sheet to cut the subsequent sheets automatically, as follows: Once a subsequent sheet is placed on the cutting table, the sensor moves to the expected location of the first mark. If the mark is not in its expected location, the system initiates a search operation to locate the mark. Once it finds the first mark, it uses information about the actual location of that mark along with the preprogrammed data about the shape of the graphic to estimate a position of the second mark. The computer then instructs the sensor to move to the estimated location of the second mark. If the second mark is not in the estimated location, the computer initiates another search function to find the mark. Once the second mark is found, the computer uses information about the actual locations of the first two marks along with preprogrammed data about the shape of the graphic to estimate a position of the third mark. This sequence is repeated until all marks are found. Once the actual positions of all marks are determined, the computer recalculates an accurate cutting path, and the graphics are accurately cut. In certain versions of Zund's software, this same method is followed, except that corners and other features of the sheet of material (i.e., what MGE's patents describe as "reference features") can be used in place of registration marks.

In later versions of its GTK Cut and Touch & Cut software packages (after version 29), Zund "disabled" the search function of the software. I will explain what "disabling" means in more detail in the analysis section, below. For now, it is enough to note that with the search function disabled, the software cannot instruct the sensor to search for a

registration mark or reference feature if it is not in an expected location. This means that the system will come to a halt unless the registration mark or reference feature is within the field of view of the sensor when the sensor is positioned over the area of the cutting table in which the computer expects to find the mark or feature. Zund states that the inability to search does not inhibit the functionality of its system because the system uses a camera that has such a large field of view that usually a mark or feature will be within the field of view when the camera is placed over the mark or feature's expected location.

II. ANALYSIS

A.   Infringement and Validity

MGE alleges that Zund America directly infringes the apparatus claims of the '168 and '187 patents by selling and offering to sell vision systems controlled by the OptiSCOUT, GTK Cut and Touch & Cut software packages. MGE alleges that Zund Systemtechnik also directly infringed the '168 and '187 apparatus claims by selling hardware components to Zund America along with a few dozen units of GTK Cut and Touch & Cut. Finally, MGE alleges that Zund Systemtechnik actively induced Zund America to infringe the apparatus claims of the patents.[2]

Zund America and Zund Systemtechnik argue that selling Zund vision systems controlled by the relevant software packages does not infringe either of MGE's patents. They further argue that even if certain versions of the software render the systems

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[2]Although MGE also contends that Zund America and Zund Systemtechnik induced infringement of the method claims of the '168 and '187 patents, MGE develops no argument relating to infringement of the method claims that differs in any respect from the arguments relating to infringement of the apparatus claims. Thus, I focus exclusively on the apparatus claims.

infringing, any verison in which the search function has been disabled does not infringe.

The Zund entities further argue that the claims of the '168 and '187 patents are invalid due

to the prior art. In the alternative, they argue that the claims of the '187 patent are invalid

because they are indefinite. Finally, Zund Systemtechnik argues that it cannot be found

liable for infringement because it does not sell the relevant software packages within the

United States.

1.   Direct Infringement

To prove direct infringement, MGE must establish by a preponderance of the

evidence that one or more claims of the patent read on the accused device literally or

under the doctrine of equivalents. Spansion, Inc. v. Int'l Trade Comm'n, 629 F.3d 1331,

1349 (Fed. Cir. 2010). Normally, the issue of infringement is a question for the trier of fact.

However, "[w]here the facts underlying the issue of infringement are undisputed, the

function of applying claims to the accused device" is a question of law for the court. Martin

v. Barber, 755 F.2d 1564, 1567 (Fed. Cir. 1985). In the present case, although a number

of peripheral facts are in dispute, the material facts relating to Zund's vision systems are

undisputed. Thus, the issue of infringement can be resolved on summary judgment. See

Fed. R. Civ. P. 56.

a.   OptiSCOUT, GTK Cut (through version 29) and Touch & Cut (through version 29)

I first consider whether a Zund vision system infringes the apparatus claims of

MGE's patents when used in conjunction with any OptiSCOUT software package or

versions 29 and earlier of GTK Cut and Touch & Cut.)

(i.) '168 apparatus claims

Zund argues that use of these software packages does not result in infringement of the '168 patent because the software does not make use of an initial-position/orientation-determining subset of registration marks. Instead, all registration marks are the same. This argument depends on my earlier claim construction, in which I held that the '168 patent requires a vision system to be able to distinguish between initial-position/orientation-determining marks and other registration marks. (See Claim Construction Dec. [Docket #152] at 8-13.)

In order to resolve this issue, I find that I must revisit my construction of "initial-position/orientation-determining marks" as used in Claim 1 of the '168 patent and similar claims because it was based on a misunderstanding of the relevant technology. See Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002) ("District courts may engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves."). My prior construction was based on the assumption that a vision system used to practice MGE's method would have to be able to distinguish between initial-position/orientation-determining marks and other registration marks in order to function properly. My thinking was that, because the patent contemplated an automatic process, the computer and sensor combination would need to be able to determine whether a mark being sensed was an initial-position/orientation-determining mark or an ordinary registration mark. Otherwise, the system could be "fooled" into thinking that an ordinary registration mark was an initial-position/orientation-determining mark, with the result that the graphic would be cut

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incorrectly.[3] I thus assumed that a person having ordinary skill in the art would understand "initial-position/orientation-determining marks" to refer to marks that differed in appearance (or some other respect) from ordinary registration marks, even though the claim language itself did not require initial-position/orientation-determining marks to have unique characteristics.

Having become more familiar with the technology during the course of considering the present motions, I now realize that a vision system can function properly without being able to distinguish initial-position/orientation-determining marks from ordinary registration marks. As described above, when a sheet of material is placed on the cutting table, the software will instruct the sensor to detect a mark located at a specific coordinate position relative to the cutting table. If the sheet is intact and has not been placed on the table improperly, the mark will be located at the specified coordinate position on the cutting table. If the sheet is distorted or has been placed improperly, the mark will in most cases still be located relatively near the specified coordinate position. When the sensor detects a mark at that position or near that position, the software simply assumes that the mark being sensed is the mark that is "supposed" to be located at that position, rather than some other mark. Although it would be possible to fool the software by orienting the sheet such that the wrong mark is located at or near the specified position, in practice this rarely occurs. In most cases, the marks are spaced far enough apart so that the sheet would have to be either extremely distorted or extremely misplaced before the wrong mark could end up at

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[3]Zund demonstrates the error that I was envisioning in its video submission. (Alsten Decl. Ex. 3.) In this video, a vision system improperly cuts the letter "A" from a sheet of material as a result of treating the wrong marks as initial-position/orientation-determining marks.

or near the expected coordinate position of a different mark. Further, MGE contends (and Zund does not dispute) that such extreme distortion and/or misplacement rarely occurs in practice.[4] Thus, a vision system can function properly without having the ability to make distinctions between initial-position/orientation-determining marks and ordinary registration marks. For this reason, a person having ordinary skill in the art would not understand the '168 claims to require the ability to make such distinctions.

With this aspect of the technology in mind, I find that initial-position/orientation-determining marks do not need to have distinguishing characteristics, such as a difference in appearance. Rather, the term "initial-position/orientation-determining marks" means any marks that are sensed for the purpose of determining a position and orientation of the sheet of material and approximate positions of the remaining registration marks at the time of cutting.[5]

Although the relevant Zund software does not use unique marks or designate any marks as initial-position/orientation-determining marks, it does use registration marks to guide the cutting process and to adjust for distortion or misplacement of the sheet of material. As explained in the background section, above, an operator uploads information about the graphic to be cut into the computer and designates various marks as the

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[4]In Zund's video, the cutting system was fooled only because the registration marks were placed at the corners of a square shape and the sheet was rotated by 90 degrees. Zund does not contend that this type of registration-mark placement and extreme rotation is common in practice.

[5]I note that the '168 claims also require that the initial-position/orientation-determining marks be "on no more than one side of the graphics area." It is not obvious to me what it means for initial-position/orientation-determining marks to be on no more than one side of the graphics area. However, the parties have not asked me to construe this phrase.

registration marks that will guide the cutter. When a sheet is placed on the cutting table, the software moves the sensor to the coordinate position of the table in which it expects to find the first mark. If the mark is where it should be, the sensor (controlled by the software) moves to subsequent marks and detects them. If the first mark is not in its expected location, the software initiates a search sequence. Once the search results in the detection of the mark, the software uses information about the actual location of the first mark along with the uploaded information about the location of the remaining marks to estimate a position of the second mark. The software then directs the sensor to the expected location of the second mark. If the mark is not in the expected location, the software initiates a second search process. Once the second mark is found, the software uses the information about the actual locations of the first and second marks along with the uploaded information about the locations of the remaining marks on the sheet to estimate a position of the third mark. The sensor then travels to the expected location of the third mark, and this process is repeated. The process continues until the actual locations of all marks have been found and the software is able to calculate an accurate cutting path.[6]

As noted, one of Zund's arguments is that its software does not use unique registration marks as initial-position/orientation-determining marks. Given my revised claim construction, this argument, though correct, is no longer relevant to the infringement analysis. The remaining issue is whether the software uses marks that are sensed for the purpose of determining a position and orientation of the sheet of material and approximate positions of the remaining registration marks at the time of cutting. With respect to this

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[6]Video #1 of Exhibit G of the Declaration of David G. Jansson illustrates this process.

issue, Zund notes that MGE has failed to show that the software source code contains any instructions causing the computer to use the actual locations of any registration marks for the purpose of determining a position and orientation of the sheet and approximate positions of the remaining registration marks.

Although it is true that MGE has not examined the software source code, the undisputed facts about how the software works nonetheless show that the software uses the actual locations of the first two marks to determine a position and orientation of the sheet and approximate positions of the remaining registration marks. As Zund concedes, its software uses the actual locations of the registration marks it has already sensed to estimate positions of the remaining marks. (Zund Opening Br. [Docket #216] at 20.) Zund also concedes that "once the system has found the actual location of the first and second marks, it will be able to calculate the expected location of the third and subsequent marks more accurately and find them more quickly." (Id. at 22.) From these concessions, it follows that the software is using the first two marks to determine the position and orientation of the sheet and approximate positions of the remaining registration marks. Perhaps the software does not contain an algorithm that explicitly instructs the computer to calculate a position and orientation of the sheet, but that is in effect what the computer is doing when it infers the locations of the third and subsequent marks from the locations of the first two marks. "Determining a position and orientation of the sheet" is simply the phrase that MGE's patents use to describe the process in which a location of a mark is mathematically inferred from the locations of prior marks – i.e., the process in which the software infers from finding the first mark in position X_1, Y_1 and the second mark in position

X_2, Y_2 that the third mark will likely be in position X_3, Y_3.[7] "Determining a position and orientation of the sheet" is an apt description of this process because the reason the inference about the location of the third mark is possible is that all marks are in predetermined, fixed locations relative to each other due to the fact that they are all printed on the same sheet and information about the locations of the marks on the sheet has been uploaded to the computer. Thus, when the software infers the position of the third mark from the positions of the first two marks, it is necessarily determining a position and orientation of the sheet and approximate positions of the remaining registration marks, even if the software algorithm for inferring the approximate positions of the remaining marks does not contain an explicit step in which the position and orientation of the sheet of material is calculated.

Accordingly, I conclude that Zund's software senses registration marks for the purpose of determining a position and orientation of the sheet of material and approximate positions of the remaining registration marks at the time of cutting. It therefore utilizes an initial-position/orientation-determining subset. Zund does not dispute that its software satisfies the remaining limitations of the relevant apparatus claims in the '168 patent,[8] and thus I conclude that selling a Zund vision system with an OptiSCOUT software package

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[7]Mathematically, the computer must know that actual positions of at least two marks in order to infer the position of another mark with accuracy. Although sensing one mark will provide some information about the possible locations of other marks, it will not enable the computer to infer whether the sheet has been rotated with respect to the surface of the cutting table. This explains why Zund's software is able to find the third and subsequent marks more accurately and more quickly than the first two marks.

[8]Zund may dispute my construction of other claim limitations, but it does not dispute that its software satisfies those limitations as construed in my claim-construction decision.

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or a GTK Cut or Touch & Cut software package through version 29 constitutes direct infringement of the apparatus claims of the '168 patent.

(ii.) '187 apparatus claims

I next consider whether a Zund vision system infringes the apparatus claims of the '187 patent when used in conjunction with an OptiSCOUT software package or GTK Cut and Touch & Cut packages through version 29.

MGE's argument is that all three of Zund's software packages infringe the '187 patent because (as I have already determined) they all infringe the '168 patent. This argument depends on construing the phrase "set of reference features of the sheet of material" in the '187 patent to encompass any set of registration marks that constitutes an initial-position/orientation-determining subset within the meaning of the '168 patent. If an initial-position/orientation-determining subset is a set of reference features of the sheet of material, then all three of Zund's software packages will infringe, since the only relevant difference between the '168 and '187 patents is the use of a set of reference features in place of the initial-position/orientation-determining subset.

Zund's argument is that an initial-position/orientation-determining subset is not a set of reference features. However, as I explained in my claim-construction decision, any registration mark can serve as a reference feature. (Claim Construction Dec. [Docket #152] at 17 n.4.) Although I did not explicitly state that a set of two registration marks could serve as a set of reference features, I do not see anything in the claim language that would prevent two registration marks from serving as a set of reference features. Of course, in my claim-construction decision, I found that initial-position/orientation-determining marks had to be unique. Carrying this logic into the '187 patent would mean that two registration

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marks could serve as a set of reference features only if they differed in appearance or some other respect from other registration marks. However, I have reconsidered my construction of this limitation and have determined that initial-position/orientation-determining marks do not need to be unique. Thus, reference features do not need to be unique, and so any two registration marks could serve as a set of reference features.

Accordingly, I conclude that selling a Zund vision system with an OptiSCOUT software package or a GTK Cut or Touch & Cut software package through release 29 constitutes direct infringement of the apparatus claims of the '187 patent.

b. GTK Cut (version 30 and later) and Touch & Cut (version 30 and later)

Starting with version 30 of GTK Cut and Touch & Cut, Zund began disabling the search function in the software. When the search function is disabled, the software cannot instruct the sensor to search for a registration mark that is not within the sensor's field of view when the sensor is positioned over the area of the cutting table in which it expects to find the registration mark. MGE concedes that if the ability to search for registration marks were excised from Zund's software, the software would not infringe the apparatus claims in either of its patents. However, MGE contends that sales of GTK Cut and Touch & Cut with the search function disabled are still infringing. This is so, MGE argues, because a user can reactivate the search function by altering a program's configuration files. As MGE demonstrates,[9] a user need only change a "no" to a "yes" in two different lines of text within the configuration files in order to enable the search function.

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[9]See Video #6, attached to the Declaration of David Jansson.

MGE's argument that disabling the search function does not cure the infringement is based on its contention that an accused product "need only be capable of operating" in an infringing way in order for a sale of that product to constitute direct infringement. (MGE Br. [Docket #199] at 20.) However, this is not a complete statement of the law. Although the sale of an accused product that is capable of operating in non-infringing modes may infringe a patent, that can occur only where the claims of the patent are "drawn to capability." Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197, 1204 (Fed. Cir. 2010); Ball Aerosol & Specialty Container, Inc. v. Limited Brands, Inc., 555 F.3d 984, 994-95 (Fed. Cir. 2009).[10] For a claim to be drawn to capability, the claim language must specify a product that is capable of performing a particular function or operation, not merely a device that actually performs that function or operation. As one treatise summarizes this line of authority:

> The [Federal Circuit decisions addressing the issue of capability to infringe] focus on what the patent claim in question requires. If a claim only requires that a device have the capacity to perform a function, one who makes a device with that capacity without the patent owner's authority is a direct infringer even though the maker's customers do not use the capacity. On the other hand, if the claim requires a structure or function, one who makes a

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[10]In Hilgraeve Corp. v. Symantec Corp., 265 F.3d 1336, 1343 (Fed. Cir. 2001), the court stated that "an accused device may be found to infringe if it is reasonably capable of satisfying the claim limitations, even though it may also be capable of non-infringing modes of operation." Subsequent cases have clarified this language and made clear that it applies only where the claims are drawn to capability. Finjan, 626 F.3d at 1204 (stating that whether quoted language from Hilgraeve applies depends on the claim language);ACCO Brands, Inc. v. ABA Locks Mfr. Co., Ltd., 501 F.3d 1307, 1313-14 (Fed. Cir. 2007) (stating that quoted language from Hilgraeve is a "broad legal statement" that does not expand the scope of direct infringement); Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299, 1307 n.7 (Fed. Cir. 2006) (stating that Hilgraeve does not "suggest that a device would directly infringe a product claim simply because the device could be modified to render it infringing").

> device without that structure or function is not a direct infringer even though the customers can modify the device to obtain the structure or function.

5 Chisum on Patents § 16.02[3][c].

An example of this distinction is Revolution Eyewear, Inc. v. Aspex Eyewear, Inc., 563 F.3d 1358, 1369-70 (Fed. Cir. 2009). The technology in that case involved "a spectacle frame that supports an auxiliary frame, enabling the user to securely fasten a second set of lenses (e.g., sunglass lenses) onto the primary frame (often holding prescription lenses)." Id. at 1362. The claim language specified that the patented device was a primary frame that is "capable of" supporting an auxiliary frame. The alleged infringer argued that its frames did not infringe because they were not designed to support auxiliary frames in the manner described in the claim language. However, the patent owner demonstrated that the accused frames were capable of supporting auxiliary frames in the specified manner. The Federal Circuit held that because the claim language encompassed a product that was capable of supporting an auxiliary frame in the specified manner rather than a product that necessarily supported an auxiliary frame in that manner, the accused frames infringed even though they were not designed to be used in an infringing manner.

Accordingly, the relevant question in the present case is not whether Zund's software is capable of satisfying the limitations of MGE's apparatus claims, it is whether MGE's apparatus claims read on a device that is capable of performing a search function when modified. In this regard, MGE concedes that if Zund deleted the software source code for searching from the accused software, its products would not infringe. But MGE contends that keeping the source code for searching in the program and disabling the code

through use of the configuration files results in infringement. Thus, the question is whether the claims read on a device that contains source code for searching, even if that code has been disabled. If so, then a sale of the device constitutes direct infringement. See Finjan, 626 F.3d at 1203-05 (where apparatus claims require software that is "programmed for performing claimed steps," sale of device containing software components for performing those steps infringes even where the components have been "locked" (i.e., disabled)). However, if the claims encompass only devices that actually perform a search function, then the presence of the code in Zund's software will not itself constitute infringement. See Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1330 (Fed. Cir. 2001) (where claim specified device capable of performing particular operation, defendant did not infringe by selling device containing software code for performing operation where other restrictions in device prevented code from performing operation); Southwest Software, Inc. v. Harlequin Inc., 226 F.3d 1280, 1291 (Fed. Cir. 2000) (where accused device does not perform claimed function, fact that software code for performing function remained in device is not infringement).

Nothing in MGE's apparatus claims suggests that a device that contains disabled source code for searching is within the scope of the claims. The claims are not drafted in terms of software components but in terms of the actual function of the apparatus. In other words, the apparatus claims specify a device that performs MGE's methods, not a device that contains software code for performing MGE's methods. When the code for searching is disabled, the device does not perform MGE's methods, and thus sales of the device with

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the code for searching disabled is not direct infringement.[11]   Accordingly, Zund does not

directly infringe MGE's patents by selling its vision systems in conjunction with later

versions of GTK Cut and Touch & Cut.

c.   Liability of Zund Systemtechnik for Direct Infringement

In the discussion up to this point, I have treated Zund America and Zund

Systemtechnik collectively.   However, although defendants do not dispute that Zund

America sold, offered to sell, and imported into the United States the accused vision

systems (comprising both the hardware and software components), they dispute the extent

to which Zund Systemtechnik has done so.   The parties do not dispute that Zund

Systemtechnik manufactures the hardware components of the vision systems and sells

them to Zund America in the United States.   However, as noted, neither Zund entity

manufactures the various software packages. The software is manufactured and sold by

two European companies, Grafitroniks of France and Eurosystems S.a.r.l. of Luxembourg.

Usually, Zund America purchases the software directly from these vendors. However, on

a few occasions in 2009, Zund Systemtechnik purchased units of GTK Cut and Touch &

Cut directly from Grafitroniks and then resold the units to Zund America. MGE argues that

these sales completed a sale of the accused device to Zund America in the United States,

and that therefore Zund Systemtechnik has sold the accused device within the United

States.

Zund Systemtechnik responds by noting that it has never sold a complete Zund

vision system to Zund America in a single transaction.   Instead, it has sold only the

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[11]MGE does not claim that Zund induces infringement by encouraging customers
to modify the configuration files and reactivate the search function.

components of a complete system in separate transactions. In response to this argument,

MGE does not point to a single transaction in which Zund Systemtechnik sold the full

system (hardware and software) to Zund America. Instead, MGE reiterates that Zund

Systemtechnik sold all the necessary components at different times, and that it knew that

the components would be combined by Zund and sold as a single system. However, MGE

cites no authority and develops no argument supporting the proposition that separate sales

of components of a patented apparatus to a single entity is a sale of the entire apparatus

in violation of 35 U.S.C. § 271(a). Moreover, it seems as though the sale of components

would be an instance of contributory infringement rather than direct infringement. See 35

U.S.C. § 271(c). Yet, MGE has not asserted a claim for contributory infringement. Given

MGE's failure to develop a legal argument on this issue, I conclude that MGE has forfeited

any claim that sales of the components of a Zund vision system to Zund America in

separate transactions constitutes a sale of the entire accused apparatus within the

meaning of 35 U.S.C. § 271(a).

2. Inducement

MGE argues that Zund Systemtechnik is liable for indirect infringement because it

actively induced Zund America to sell vision systems controlled by the versions of

OptiSCOUT, GTK Cut and Touch & Cut that render the systems infringing. See 35 U.S.C.

§ 271(b) ("Whoever actively induces infringement of a patent shall be liable as an

infringer."). MGE's argument is that Zund Systemtechnik was aware of MGE's patents but

nonetheless encouraged Zund America to commit the acts constituting direct infringement

– i.e., selling Zund vision systems along with the relevant software packages. Zund

Systemtechnik does not seem to dispute that it was aware of MGE's patents and that it

encouraged Zund America to sell the vision systems at issue. However, Zund Systemtechnik disputes that it acted with the state of mind necessary to create liability for active inducement. In particular, it contends that it had a good-faith belief that a complete Zund vision system did not infringe any of MGE's patents. If, in fact, Zund Systemtechnik had a good-faith belief that the vision systems did not infringe, then it could not be found liable for inducement. See DSU Med. Corp. v. JMS Co., Ltd., 471 F.3d 1293, 1306 (Fed. Cir. 2006) (en banc as to cited material) ("inducement requires evidence of culpable conduct, directed to encouraging another's infringement, not merely that the inducer had knowledge of the direct infringer's activities"); id. at 1307 (concluding that evidence that defendant did not believe that its product infringed patent supported jury's finding of no active inducement even though defendant was aware of patent); Robert L. Harmon, Patents & the Federal Circuit § 7.3(c) at p. 497 n.311 (9th ed. 2009) (stating that DSU Medical "seems to indicate that good faith belief that the acts do not constitute infringement will avoid a finding of inducement").

In response to this argument, MGE contends that the evidence shows that Zund Systemtechnik "knew or should have known" that sales of the accused systems would constitute infringement. (MGE Surreply [Docket #255-1] at 5.) To begin with, however, it is not enough to show that Zund Systemtechnik "should have known" that sales of the accused systems would infringe. Rather, the Federal Circuit has held that inducement occurs only where the defendant's mental state rises to the level of actual knowledge that the induced acts would infringe or deliberate indifference to a risk that the acts would infringe, which is a higher standard than the "should have known" standard. SEB S.A. v.

Montgomery Ward & Co., 594 F.3d 1360, 1376-77 (Fed. Cir. 2010).[12] Moreover, MGE has

not pointed to evidence from which a reasonable trier of fact could conclude that Zund

Systemtechnik either knew that sales of Zund vision systems would infringe or was

deliberately indifferent to the risk that such sales would infringe. MGE claims that a trier

of fact could infer actual knowledge or deliberate indifference from the fact that Zund

Systemtechnik disabled the search function in GTK Cut and Touch & Cut in 2009 in an

effort to avoid infringement. But this particular act qualifies as a subsequent remedial

measure and therefore is not admissible to prove culpable conduct. See Fed. R. Evid.

407; Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1221-22 (Fed. Cir. 1995). The

remaining evidence cited by MGE is evidence showing that Zund Systemtechnik believed

that Zund's vision systems would infringe if MGE's interpretation of the patents were

adopted. But, as indicated by this same evidence, Zund Systemtechnik believed that

MGE's interpretation of the patents was incorrect. Although Zund Systemtechnik has lost

this argument in part, that does not mean it did not believe in good faith that MGE's patents

did not read on the accused vision systems. And MGE has offered no evidence from

which a trier of fact could reasonably infer that Zund Systemtechnik's belief was the

product of bad faith. Accordingly, MGE's motion for summary judgment as to inducement

is denied, and Zund Systemtechnik's motion for summary judgment on this issue is

granted.

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[12]The Supreme Court is presently considering whether deliberate indifference to a risk that certain acts will infringe satisfies the state of mind element of an inducement claim. See Global-Tech Appliances, Inc. v. SEB S.A., No. 10-6 (argued Feb. 23, 2011). However, the question on which certiorari was granted is whether the deliberate-indifference standard is too low. Thus, MGE's "should have known" standard is not on the table.

3.   Validity

Besides arguing that its vision systems do not infringe, Zund argues that MGE's patents are invalid because they were anticipated by the prior art. Zund also argues that the claims of the '187 patent are indefinite, and that this indefiniteness provides an alternative reason for invalidating the '187 patent. Because a patent is presumed to be valid, Zund bears the burden of showing facts supporting a conclusion of invalidity by clear and convincing evidence. Spansion, Inc. v. Int'l Trade Comm'n, 629 F.3d 1331, 1344 (Fed. Cir. 2010).

a.   Prior Art

Zund's first argument is that the claims of the '168 and '187 patents are invalid because the patented inventions were described in European Patent Application No. EP 0 704 283, published in 1996 by Summagraphics N.V. See 35 U.S.C. §§ 102(a) & 102(b). The Summagraphics patent describes a vision-cutting system that, like MGE's patented methods and apparatus, relies on sensing printed registration marks ("marker prints") to assure that graphics are accurately cut despite distortion or misplacement of the sheet of material. However, unlike MGE's patents, the Summagraphics patent does not disclose a method for searching for an initial subset of registration marks when they are not within a field of view of the main sensor when the sensor is placed over the expected location of the subset on the cutting table and inferring from the actual location of the initial subset an approximate position of the remaining registration marks. Although Summagraphics teaches that registration marks may be detected by using a light beam that is "scanned in two mutual substantial perpendicular directions," this is not the same as MGE's search

function. While Summagraphics' scanning function may involve finding registration marks that are not in their expected locations, it performs this function by scanning the sheet until it finds the actual locations of <u>all</u> registration marks. Summagraphics does not describe a method in which (a) a search is performed for the purpose of finding a <u>subset</u> of registration marks, and then (b) approximate locations of the remaining marks are inferred from the actual location of the subset, thereby eliminating the need to search the entire sheet of material for the remaining marks. The Summagraphics patent therefore does not disclose this element of MGE's invention.

Zund also offers a video demonstration of the Summagraphics vision system in operation. This video shows a Summagraphics vision system using the actual location of a subset of registration marks for the purpose of inferring the locations of the remaining registration marks. However, this video was made in 2009. MGE's patents were filed in 2001 and 2002. Thus, even if this video discloses MGE's invention, it is not a prior art reference and so does not invalidate MGE's patents.

Accordingly, Zund has not demonstrated that the '168 and '187 patents are invalid due to the prior art.[13]

b. Indefiniteness

Zund also argues that the claims of the '187 patent are invalid due to indefiniteness. Under 35 U.S.C. § 112, ¶ 2, the claims must "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." The "distinctly claiming"

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[13]Zund also suggests that MGE's patents are invalid because they are obvious in light of the prior art. <u>See</u> 35 U.S.C. § 103(a). However, Zund does not develop this argument beyond making a conclusory assertion that the inventions are obvious, and so I consider this argument forfeited.

requirement means that the claims must have a clear and definite meaning when construed in light of the complete patent document. Miles Labs., Inc. v. Shandon Inc., 997 F.2d 870, 874-75 (Fed. Cir. 1993). "The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification. If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, the claims are not indefinite." Id. at 875.

Zund argues that my adoption of MGE's interpretation of the limitation "a set of reference features of the sheet of material" renders the '187 claims indefinite. I concluded that the term "reference features" in this limitation meant "edges, corners and detectable graphical images within the graphics areas on the sheet." (Claim Construction Dec. [Docket #152] at 19.) Zund argues that the specification fails to state how graphical images within a graphics area could serve as reference features, and that therefore a person having ordinary skill in the art would not understand the boundaries of the claims. MGE responds by asserting that it would have been readily apparent to a person skilled in the art how a graphical image could be recognized by a sensor and related software and thus be used to determine the initial position and orientation of a sheet of material. MGE contends that because this knowledge was part of the background to the invention, a person having ordinary skill in the art would have had reasonable notice that using elements within graphics areas as reference features was within the scope of the claims.

Before I may determine whether the claims are definite when read in light of the specification, I must identify the level of skill assigned to a person of ordinary skill in the art. AllVoice Computing PLC v. Nuance Commn'ns, Inc., 504 F.3d 1236, 1240 (Fed. Cir. 2007). Doing so is "essential to administering the definiteness test." Id. Indeed, the parties'

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arguments on this issue turn on what a person of ordinary skill in the art would have known about detecting points within graphics areas for the purpose of determining a position and orientation of the sheet of material. However, both MGE and Zund offer only bald assertions about the skill level of a person having ordinary skill in the art and what such a person would understand about the bounds of the '187 claims when read in light of the specification. Neither party offers evidence or other authority to support its assertions. Because of the presumption of patent validity, however, this failure of proof results in a conclusion that the claims are not indefinite. Accordingly, Zund's motion for summary judgment on indefiniteness is denied, and MGE's corresponding motion for summary judgment on the same issue is granted.

B.   Assignor Estoppel

MGE also moves for summary judgment on Zund's invalidity affirmative defenses on the ground that Zund is barred from asserting invalidity pursuant to the doctrine of assignor estoppel. However, because I have determined that Zund's invalidity defenses fail as a matter of law, I need not consider whether those defenses also fail because of assignor estoppel. Therefore, MGE's motion for summary judgment regarding assignor estoppel is denied without prejudice.

C.   State-Law Claims

Finally, Zund moves to dismiss the state-law claims that MGE has asserted against Zund America and four individuals employed by Zund America on the ground that I do not have supplemental jurisdiction over such claims pursuant to 28 U.S.C. § 1367(a). The relevant claims all arise from an incident that occurred on September 29, 2006, at a trade

show in Las Vegas. MGE alleges that the individual defendants broke into MGE's booth at the trade show after hours and tampered with MGE's property. MGE alleges that these acts constitute property damage, trespass, conversion, conspiracy to cause business injury, and unjust enrichment.

MGE concedes that there is no basis for original subject-matter jurisdiction over these claims, and that their presence is this suit depends on an exercise of supplemental jurisdiction. Federal courts "have supplemental jurisdiction over all other claims that are so related to claims [within original jurisdiction] that they form part of the same case or controversy." 28 U.S.C. § 1367(a); Anderson v. Aon Corp., 614 F.3d 361, 364 (7th Cir. 2010). However, MGE's infringement claims and state-law claims do not form a single case or controversy. These claims arise out of different transactions and occurrences and do not have even a single common question of fact or law. The only possible connection between the claims is that they all involve Zund America, Inc. and relate to the fact that Zund and MGE are fierce business competitors. But this is an extremely tenuous connection. Indeed, assuming I had jurisdiction over the state-law claims, the presence of such claims would be so distracting and prejudicial to the merits of the infringement claims that I would have to hold separate trials – one on infringement and one on the state-law claims. See Fed. R. Civ. P. 42(b); Mars Inc. v. Kabushiki-Kaisha Nippon Conlux, 24 F.3d 1368, 1375 (Fed. Cir. 1994) (stating that claims did not form part of same case or controversy where purported supplemental claims would require a separate trial). Accordingly, the infringement and state-law claims are not parts of a single case or controversy, and therefore I may not exercise supplemental jurisdiction over the state-law claims.

III. CONCLUSION

For the reasons stated, **IT IS ORDERED** that plaintiff's motion for summary judgment on infringement [Docket #195] is **GRANTED IN PART** and **DENIED IN PART**.

IT IS FURTHER ORDERED that plaintiff's motion for summary judgment on assignor estoppel [Docket #197] is **DENIED WITHOUT PREJUDICE**.

IT IS FURTHER ORDERED that defendants' motion for summary judgment [Docket # 215] is **GRANTED IN PART** and **DENIED IN PART**.

FINALLY, IT IS ORDERED that the claims alleged in Paragraphs 41 to 73 of the Amended Complaint [Docket #241] are **DISMISSED** for lack of subject matter jurisdiction.

As a result of these rulings, Zund Systemtechnik, Peter Alsten, Peter Kilburn, Marc Masi and David Tebon are dismissed from the case.

Dated at Milwaukee, Wisconsin, this 7th day of April, 2011.

/s_____
LYNN ADELMAN
District Judge